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(G*) Progress on the Hyper-Kamiokande multi-Photomultiplier Tube Modules

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The Hyper-Kamiokande project plans to measure the phenomenon of neutrino oscillations with unprecedented precision, at the 1% systematic uncertainty level or less. To do so, multiple water cherenkov detectors will be deployed: near and far detectors, as well as a test experiment (WCTE) for the testing of new technologies and improvement of physics understanding. These detectors will use multi-photomultiplier tube (mPMT) modules, each of which consists of nineteen 3" PMTs for the detection of cherenkov radiation produced by the resultant charged particle from a neutrino interaction. These mPMTs are under development at multiple locations. A number of measurements have been done on the modules, including optical tests to understand light-collection capabilities before and after the inclusion of additional reflective material on the PMT cups, pressure tests to measure the amount of deflection of the mPMT components at various water depths, and mechanical tests on the gel that optically couples the PMTs to the acrylic dome covering the module. This presentation will discuss these measurements, as well as provide an overview of the mechanical components and electronics that comprise the modules.

Keyword-1

mPMT

Keyword-2

Neutrino

Keyword-3

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